CLAIMS

What is claimed as new and desired to be protected by Letters Patent of the United States is:

1. A safety needle assembly for use with a subcutaneously implanted vascular access port, comprising:

a needle having a proximal end and a distal end;

a body attached to and in fluid communication with the proximal end of the needle; and

a base attached to the body;

wherein movement of the needle assembly from an insertion position to a protection position expunges fluid from the body through the distal end of the needle, creating a positive flush.

2. The needle assembly according to claim 1, wherein the proximal end of the needle is angularly positioned relative to the distal end of the needle.

3. The needle device according to claim 1, wherein said distal end of said needle has a non-coring configuration.

4. The needle assembly according to claim 1, wherein said base comprises a needle housing that surrounds the distal end of said needle and prevents movement thereof in a distal direction when the needle assembly is in the protection position.

5. The needle assembly according to claim 1, wherein said base comprises a contact patch that maintains contact with a patient's skin during movement from the insertion position to the protection position.

6. The needle assembly according to claim 5, wherein said contact patch conforms to the contour of the patient.

7. The needle assembly according to claim 5, wherein said base further comprises an arm and a hinge, being respectively attached to an opposite end of said body.

8. The needle assembly according to claim 1, wherein said body comprises a female portion and a male portion that collapse together upon movement from the insertion position to the protection position.

9. The needle assembly according to claim 8, wherein said male portion comprises a plunger element that expunges fluid from said female member when the needle assembly is moved from the insertion position to the protection position.

10. The needle assembly according to claim 8, wherein said male portion comprises at least one guide pin having at its distal end a locking portion.

11. The needle assembly according to claim 10, wherein said female portion comprises a guide pin receptacle having a locking chamber that receives said locking portion of said guide pin, thereby preventing relative movement of said male portion.

12. The needle assembly according to claim 11, wherein said locking portion comprises an expanded diameter and a contracted diameter.

13. The needle assembly according to claim 12, wherein said locking chamber comprises a narrowed region that exerts external pressure on said locking portion, forcing said locking portion into its contracted diameter.

14. The needle assembly according to claim 8, wherein said female portion comprises a releasable interlock member that releasably locks said body to said base when the needle assembly is in the insertion position.

15. The needle assembly according to claim 8, wherein said base comprises a contact patch that maintains contact with a patient's skin during movement from the insertion position to the protection position.

16. The needle assembly according to claim 15, wherein said contact patch comprises needle housing that surrounds the distal end of said needle and prevents movement thereof in a distal direction when the needle assembly is in the protection position.

17. The needle assembly according to claim 16, wherein said base further comprises an arm and a hinge, said arm being attached at one end to said male portion and at an opposite end to said first component, said hinge being attached at one end to said arm and at an opposite end to said female member.

18. A needle device for use with a subcutaneously implanted vascular access port, comprising:

a needle having a proximal end and a distal end;

a housing attached to said proximal end of said needle, comprising a lower portion and an upper portion, said lower portion being movable from an insertion position to a protection position, said upper portion being graspable to facilitate positioning of said needle device; and

a collapsible reservoir disposed between said upper and lower portions of said housing and in fluid communication with said fluid flow path of said needle.

19. The needle device according to claim 18, wherein said proximal end of said needle is angularly positioned relative to said distal end.

20. The needle device according to claim 18, wherein said distal end of said needle has a non-coring configuration.

21. The needle device according to claim 18, wherein said lower portion comprises at least one extension positioned adjacent said collapsible reservoir, wherein said extension engages said collapsible reservoir when said lower portion is moved from the insertion position to the protection position, thereby expunging fluid from said collapsible reservoir.

22. The needle device according to claim 18, wherein said lower portion comprises a releasable locking mechanism that releasably locks said lower portion in the insertion position.

23. The needle device according to claim 18, wherein said lower portion comprises a permanent locking mechanism for permanently locking said lower portion in the protection position.

24. The needle device according to claim 18, wherein said lower portion comprises an integral hinged assembly having a plurality of connected sections.

25. The needle device according to claim 24, wherein said hinged assembly comprises at least one extension positioned adjacent said collapsible reservoir, wherein said extension engages said collapsible reservoir when said lower portion is moved from the insertion position to the protection position, thereby expunging fluid from said collapsible reservoir.

26. The needle device according to claim 24, wherein said hinged assembly comprises a releasable locking mechanism that releasably locks said lower portion in the insertion position.

27. The needle device according to claim 26, wherein said releasable locking mechanism comprises a first locking element positioned on the interior of at least one of said sections in alignment with a corresponding second locking element positioned on an adjacent section when said lower portion is in the insertion position.

28. The needle device according to claim 24, wherein said hinged assembly comprises a permanent locking mechanism for permanently locking said lower portion in the protection position.

29. The needle device according to claim 28, wherein said permanent locking mechanism comprises two protrusions positioned on the interior adjacent inner sections, said protrusions being configured to lock together in the protection position.

30. The needle device according to claim 18, wherein said lower portion comprises an integral hinged assembly having four connected sections, wherein a first and fourth section are configured for attachment to said upper portion and wherein a second and third section are configured for locking engagement with one another when in the protection position.

31. The needle device according to claim 30, wherein said second and third section each have a protrusion on an interior thereof, wherein said protrusions on said second and third sections are configured for locking engagement when the needle device is in the protection position.

32. The needle device according to claim 31, wherein said first section has an opening in alignment with said protrusion on said second section for receipt therethrough when said lower portion is in the insertion position and wherein said fourth section has an opening in alignment with said protrusion on said third section for receipt therethrough when said lower portion is in the insertion position.

33. The needle device according to claim 30, wherein at least one of said first and fourth sections comprises a first locking element and wherein at least one of said second and third sections comprises a second locking element, said first and second locking elements being configured for releasably locking said lower portion in the insertion position.

34. The needle device according to claim 30, wherein said first and fourth sections each comprise an extension portion wherein said extension portions press against said collapsible reservoir when said lower portion is moved from said insertion position to said protection position.

35. A safety needle assembly, comprising:

a needle having a proximal end and a distal end;

a compressible member connected to a proximal end of said needle and in fluid communication therewith;

a base having an opening for receiving said needle;

a body surrounding said compressible member and movable with respect to said base;

wherein movement of said needle assembly from an insertion position to a protection position expunges fluid from the compressible member through the distal end of the needle, creating a positive flush.

36. The needle assembly according to claim 35, wherein the proximal end of the needle is angularly positioned relative to the distal end of the needle.

37. The needle device according to claim 35, wherein said distal end of said needle has a non-coring configuration.

38. The needle device according to claim 35, wherein the compressible member comprises a balloon having a capacity to hold a volume of fluid.

39. The needle device according to claim 35, wherein said base is positioned under said body, said base comprising a winged member configured to lie substantially flat against a surface.

40. The needle device according to claim 39, wherein said winged member further comprises a contoured section.

41. The needle device according to claim 40, wherein said contoured section comprises gripping ridges.

42. The needle device according to claim 39, wherein said base further comprises a support structure.

43. The needle device according to claim 42, wherein said support structure has an extending portion that extends through said winged member and into said body.

44. The needle device according to claim 43, wherein said extending portion is configured for holding a compression member.

45. The needle device according to claim 44, wherein said compressible member is positioned between said compression member and said body.

46. The needle device according to claim 43, wherein said extending portion comprises a locking section, wherein movement to the protection position permanently locks the body to the extending portion.

47. The needle device according to claim 43, wherein said extending portion comprises a plurality of legs.

48. The needle device according to claim 47, wherein said legs are tapered.

49. The needle device according to claim 48, wherein said legs comprise a first notched section, configured to receive a portion of said body therein when said needle assembly is in the protection position.

50. The needle device according to claim 48, wherein said legs comprise a second notched section, configured to receive a compression member therein.

51. The needle device according to claim 35, wherein said body comprises separate halves that permanently lock together.

52. The needle device according to claim 35, wherein said body comprises a contoured outer surface.

53. The needle device according to claim 52, wherein said contoured outer surface comprises gripping ridges.

54. The needle device according to claim 35, further comprising a compression member, wherein movement from the insertion position to the protection position forces said compression member against said compressible member.

55. The needle device according to claim 35, further comprising a protection sleeve surrounding a portion of said needle, wherein a needle tip of said needle is uncovered by said protection sleeve when said needle assembly is in the insertion position and wherein said needle tip is covered by said protection sleeve when said needle assembly is in the protection position.

56. The needle device according to claim 55, wherein said needle tip is biased against movement out of said protection sleeve when said needle assembly is in said protection position.

57. A method of supplying fluid to a vascular access port, comprising:

providing a needle assembly comprising a needle and a positive flushing mechanism;

inserting said needle into said vascular access port;

delivering fluid to said vascular access port;

removing said needle from said vascular access port; wherein said positive flushing mechanism is engaged, sending a volume of fluid through said needle before said needle completely exits said port.

58. A method for preventing a negative pressure within a vascular access port upon removal of a needle therefrom, comprising:

activating a positive flushing mechanism comprising a fluid-holding member, wherein a volume of fluid is simultaneously released from said member through a needle tip of said needle when said needle tip is withdrawn from said vascular access port.